

What is claimed is:

1. An electric motor control system comprising:

5 a 2-phase/3-phase converting means for converting output current from an inverter section that inverts dc power to ac power into mutually perpendicular 2-phase signals that are a d-axis current component signal and a q-axis current component signal;

10 a current phase commanding means for outputting, in restarting after an instantaneous power failure being restored, mutually perpendicular 2-phase signals that are the d-axis current component commanding signal and the q-axis current component commanding signal, and phase angles of the d-axis current component commanding signal and the q-axis current component commanding signal;

15 a d-axis current control means for amplifying a difference signal of the d-axis current component, the difference signal of the d-axis current component being the difference between the d-axis current component commanding signal and the d-axis current component signal, and for outputting a d-axis component of a 2-phase-voltage command that controls output current from the inverter section in such a manner that the
20 difference signal is zero;

a q-axis current control means for amplifying a difference signal of the q-axis current component, the difference signal of the q-axis current component being the difference between the q-axis current component commanding signal and the q-axis current component signal, and for
25 outputting a q-axis component of a 2-phase-voltage command that controls

output current from the inverter section in such a manner that the difference signal is zero;

an induction-motor-rotation-status detecting section for receiving the d-axis component of the 2-phase-voltage command outputted from the
5 d-axis current control means, and the q-axis component of the 2-phase-voltage command outputted from the q-axis current control means, and for calculating a rotating frequency and a rotating direction of a coasting induction motor; and

a phase-reversal-timing detecting means for detecting as a
10 phase-reversal timing a specific phase at which an amplification factor of ripple components superposed on the d-axis component of the 2-phase-voltage command outputted from the d-axis current control means is maximal, the current phase commanding means turning the phase of a current-command by 180 degrees according to the specific phase outputted
15 from the phase-reversal-timing detecting means.

2. An electric motor control system according to Claim 1, wherein, in restarting after an instantaneous power failure being restored, after the current control has been started and the effect of transient variation has
20 been abated, the phase-reversal-timing detecting means detects a first maximal value, a first minimal value, and a second maximal value by comparing a value of the integration term of the d-axis component of the 2-phase-voltage command outputted from the d-axis current control means with its previous value, and then outputs a time at which the value of the
25 integration term of the d-axis component of the 2-phase-voltage command

becomes below (the first minimal value + the second maximal value) / 2, as a first specific phase at which the current-commanding phase is turned by 180 degrees, to the current phase commanding means.

- 5 3. An electric motor control system according to Claim 2, wherein, after
outputting the first specific phase, the phase-reversal-timing detecting
means detects a first maximal value, a first minimal value, and a second
maximal value by comparing a value of the integration term of the d-axis
10 component of the 2-phase-voltage command outputted from the d-axis
current control means with its previous value, and then outputs a time at
which the value of the integration term of the d-axis component of the
2-phase-voltage command has become the second maximal value, as a
second specific phase at which the current-commanding phase is turned by
180 degrees, to the current phase commanding means.

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